



## Centre Emphasizes Need For Environmentally Sound Technology Assessment

**T**he Centre for Science and Technology for Development (CSTD) will provide sponsorship and other support this year for a series of initiatives designed to give teeth to the concept of sustainable development.

CSTD is directly involved with 11 international workshops, seminars and conferences between April and December, all of which aim to give developing nations the capacity to weigh the benefits of technologies for their development against their potential environmental and social impact.

Both the Centre and the UN system at large are concerned that while environmental problems are often global in nature there is a world of difference between the capacities of rich and poor nations to manage economic growth which is at peace with nature. Although many nations speak the same environmental language and share each other's concerns, the spoken global consensus which is emerging for sound environmental policies and practices falls away dramatically at the level of economic, political, and institutional frameworks for action.

The industrialized nations have the ability in all three areas to monitor and



Lydia Okumura

contain environmental damage. They virtually control the research and development of environmentally sound technologies as well as their production and transfer. Moreover, their policies and institutions are driven by growing public awareness of environmental issues, accompanied by a belief that economic development should not pose unacceptable risks to environments at home or abroad.

In the developing world, concern for the environment is relatively more difficult to translate into action. Extremes of poverty and deprivation have given developing nations other priorities. Even when technologies are available, very limited endogenous capacity precludes their effective application. Few developing countries have the necessary scientific and technological capacity to assess environmental risks, or to formulate policy responses related to environmentally sound technology options.

In an endeavour to turn that situation around, the UN General Assembly last year endorsed a proposal which effectively transformed the

(Cont. Pg. 2)

## Canadian To Lead 1992 Conference

**U**nited Nations Secretary-General Javier Pérez de Cuéllar has appointed Maurice F. Strong as Secretary-General of the United Nations Conference on Environment and Development, to be held in Brazil in 1992.

Mr. Strong is Chairman of the Council of the World Economic Forum, Geneva, and President of the World Federation of United Nations Associations.

From 1985 to 1986, he was Executive Co-ordinator of the United Nations Office for Emergency Operations in Africa. He was Secretary-General of the 1972 United Nations Conference on the Human Environment, and was the first Executive Director of the United Nations Environment Programme.

His work in development has included leadership of Canada's international development assistance agency and service as alternative governor of the World Bank, the Asian Development Bank, and the Caribbean

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Maurice Strong

UN Photo

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ATAS News — Special Environment Issue



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Intergovernmental Committee on Science and Technology for Development (IGC) into an office of technology assessment. The broad Assembly decision, now being implemented by CSTD with respect to environmentally sound technologies, has two main objectives: to expand the traditional concept of environmental impact statements to embrace social and economic interactions with the environment; and to make environmentally sound technologies and practices available to developing nations without compromising their efforts to industrialize.

The Assembly's resolution specifically requests an analysis of ways and means of increasing the developing countries' share in the international research and development of environmentally sound technologies, and of facilitating their access to such technologies developed elsewhere.

CSTD's contention that all developing countries should have the capacity for Environmentally Sound Technology Assessment (ESTA) will be on the agendas of each of the 11 events with which the Centre is associated this year. ESTA is evolving as one yardstick by which the sustainability of future UN development projects will be measured, and it will be the subject of CSTD's eighth ATAS Bulletin in 1991.

The following events and activities will contribute to ESTA this year:

- The 10th session of the UN Advisory Committee on Science and Technology for Development—Zhuhai, China, 2-10 April.

- An International Conference on Energy in Climate and Development: Policy Issues and Technological Options—Saarbrücken (FRG), 28-31 May. The conference has been organized by CSTD and the Government of

the Federal Republic of Germany. (See story... ATAS News pg. 1)

- The 11th session of the ACC Task Force on Science and Technology for Development—New York, 7-9 May—organized by CSTD and UNIDO.

- An *Ad Hoc* Expert Group meeting on the Role of Science and Technology in Development Co-operation—Paris, 18-19 May, organized by OECD.

- An International Seminar on Desertification Processes of Contiguous Areas: Science and Technology Policy Issues and Options—Lanzhou, China, 26 June-4 July—organized by CSTD and the People's Republic of China. (See story *Update* 40, Winter 1989/90).

- A Seminar on the Assessment of the Implementation of the Network of Clean Production Technologies—Canterbury, England, 17-20 September—organized by UNEP. (See article ATAS News Pg. 4)

- A Workshop on Creative Financing for Environmentally Sound Development—Carajas, Brazil, September, organized by CSTD and the Companhia Vale do Rio Doce (CVRD).

- African Regional Workshop on Biotechnology for Food Production in Dry Areas: A Regional Assessment—Dakar, Senegal, October, organized by CSTD and the African Biotechnology Network of ICSU/UNESCO.

- An Expert Panel on Environmentally Sound Technologies in the Context of Sustainable Development—Berlin (GDR), October, organized by CSTD and the German Democratic Republic Academy of Sciences.

- A Workshop series on the removal of economic and legal barriers to the transfer of environmental technologies to developing countries—Washington, February, April, September and December, organized by the US Environmental Protection Agency.

- The Second World Climate Conference—Geneva, 12-16 December, organized by the World Meteorological Organization (WMO).

Recent events at which ESTA was discussed include:

- A Conference on Environment and Development—Breaking away from the Ideological Deadlock—Harriman, New York, 23-25 February, organized by the Stanley Foundation.

- A Eureka Seminar on Advanced Technologies for Developing Countries—Florence, Italy, 9-10 March, organized by the Eureka Italian Chairmanship. ■

## The Cairo Compact

**O**n 21 December 1989, the World Conference on Preparing for Climate Change adopted a statement of shared resolve to confront the multiple challenges posed by global warming. More than 400 participants from six continents attended the five-day conference in Cairo, Egypt, and urged that immediate national and international actions be taken to reduce the impact of climate change.

Copies of the "Cairo Compact" and Panel Reports are available for \$10, including postage and handling, from the Climate Institute, 316 Pennsylvania Avenue, S.E., Suite 403, Washington, DC 20003 USA. ■

## New Research By Swedish Institute

**T**he recently established Stockholm Environment Institute is designing a rolling research programme to examine sustainable development activities.

Most of the research will be directed to impacts on developing countries.

For further information please write to: Professor Gordon T. Goodman, Executive Director, Stockholm Environment Institute, Box 2142, S-103 14 Stockholm, Sweden. ■

(Cont. from Pg. 1)

Development Bank. He has been President and Chairman of the Board of PetroCanada, as well as President or Director of various Canadian and international corporations.

Mr. Strong was a member of the World Commission on Environment and Development, co-Chairman of the Policy Board of Interaction, and Chairman of the International Union for the Conservation of Nature and Natural Resources.

He is the recipient of 27 honorary degrees from universities in Canada, the United States and Europe, and at the time of his appointment was Chairman of Stroeve Holdings in Canada.

(See "Road to Brazil," Page 4) ■

# Peace Initiatives Create New Climate For Sustainable Development

By Mostafa K. Tolba and Sergio C. Trindade

**M**ankind is moving towards the dawn of a new era when resolution of armed conflicts and peaceful coexistence seem more possible than ever before. No longer is the concern stemming from fear of armed conflict as pressing as the global concern about environmental degradation. News about ozone depletion, climate change and global warming have helped arouse public awareness and sway policy-makers to begin considering national, regional and global actions geared towards arresting and reversing the ominous process of an impending environmental catastrophe from which no single nation will be immune.

The environmental crisis is not simply limited to problems relating to the quality of the air, water or the preservation of the atmosphere. It has now become a set of deeply intertwined socio-economic problems of vastly significant political and security implications. They involve issues which are global in nature. They need international co-operation on an unprecedented scale. International organizations have a joint perspective and/or experience to contribute to the assessment of their implications and the formulation of policy responses to deal with them. A recurring issue in all these problems is the need for environmentally sound technologies.

For remedial action to be meaningful it must involve new technologies and adequate resources. Clean and resource-conserving technologies have the potential to overcome the

seemingly intractable problems of how to accelerate economic growth and social development while protecting and preserving the local and global environment. Most important, however, is the ability of nations to be able to discern for themselves the technological choices that are available to them in the common battle to preserve the global environment. There is a key role in all this for the stakeholders in development from all walks of life: scientists, technologists, the financial community, private entrepreneurs, public interest groups.

Not all countries are faced with the same set of environmental problems. Nor is the severity of the problems they face of equal magnitude. Policy choices related to environmentally sound technology options have to take this into account. This alone will not lead to the required global partnership needed to deal with the problems we are facing.

Whatever may be the intensity of national desires, there are bound to be a large number of countries which in spite of their best intentions may not be able to undertake the kind of socio-economic and technological initiatives that are demanded by the deteriorating environmental situation. A coalition of ideas, resources and talents would be required in order to help such countries adopt the measures that are needed to promote their environmentally sound and sustainable development.

This places an enormous burden on the international organizations within

and outside of the United Nations system to co-ordinate and synergize the larger human purpose to deal with the complexities of both local and global environmental problems. The Report of the World Commission on Environment and Development, the UN Environmental Perspective to the Year 2000 and Beyond and the many international and regional conferences that dealt with the serious environmental problems we are now facing all energize the attention of the world community to implement programmes early in this decade to protect the future of mankind from disasters, whose signals are already clear to us.

Failure to approach this problem with a new imagination and unparalleled vigour would clearly mean we are failing to face our responsibility to future generations, to those yet to be born, to those who have no say whatsoever in the decisions we are taking today, which will seriously influence life on the one and only earth we have borrowed from them. ■

**Dr. Mostafa K. Tolba is the Executive Director of the United Nations Environment Programme (UNEP). Dr. Sergio C. Trindade is the Executive Director of the Centre for Science and Technology for Development (CSTD).**

## CFC Phase Out Advances

**T**he European Community Commission has proposed 1997 as a new target for the elimination of ozone-depleting chlorofluorocarbons (CFCs). Although three years ahead of the current world deadline, the Commission maintains that, if its proposal became law, major industrial users of CFCs and halons would still have sufficient time to switch to new substitutes currently being developed.

The European Community produces almost half (450,000 metric tonnes) of the world's estimated 1.1 million metric tonnes of CFCs a year. ■



Dr. Tolba

UNEP



Dr. Trindade

# Posting Signs On The Road To Brazil

By Maurice F. Strong

**T**he road to the United Nations Conference on Environment and Development (Brazil 1992) will take us into new and unmapped territory, but fortunately our work does not start in a vacuum. There are important signposts and experiences to guide us, for our journey really began on the road to Stockholm in 1972.

Since then, the environmental agenda has grown in extent and depth. New evidence has lent greater urgency to such concerns as acid rain, ozone depletion and climate change.



Biochimico

Moreover, deforestation, desertification, threats to our freshwater resources and the presence of toxic chemicals and nuclear and other wastes in the environment continue to pose major challenges.

There has also been a good deal of progress over the past 18 years in our capacity to deal with these issues and their relationships. Much of this progress stems from the impressive accomplishments of UNEP. The remarkable explosion of political and public interest in, and concern for, the environment over the past few years has been accompanied by a growing recognition of the critical nature of the environment-development relationship. At the national level, and at the inter-governmental level, notably in the UN system, there has been an encouraging trend towards a better integration of environment and development.

## Stakeholders

An important element in preparations for the Conference at both national and international levels will be the contributions of the various non-governmental constituencies—science and technology, education, industry, labour unions, women, youth, professional and special interest groups and indigenous peoples. Special assistance will need to be provided to developing country organizations and groups to ensure that these



important constituencies can participate and contribute fully to the preparatory process and in the conference itself.

## NGOs

I am greatly encouraged by the keen interest that the non-governmental community is showing in the Conference and the steps they are taking to mobilize their formidable array of energies and capacities to contribute to it and the preparatory process. Their plans to hold a "Congress of the Peoples of the Earth" to coincide with and support the Conference will be welcomed and encouraged by the Committee. The contribution they can make is a critical and indispensable one.

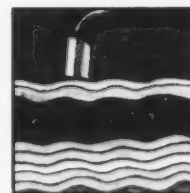
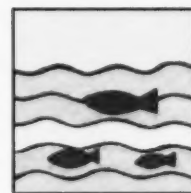
## Indivisible

There is an overriding need to create a positive synthesis between environmental and developmental imperatives. The issues on the Conference agenda cannot be divided into two separate categories with environment on the one hand and development on the other. Each issue has an environmental as well as a developmental dimension, as the General Assembly recognized in making this a Conference on Environment and Development. Climate change, for example, can be dealt with effectively only through measures which integrate environmental and developmental considerations. The Stockholm Conference recognized the critical importance of the environment-development relationship but dealt with it largely at the conceptual level. Since then we have progressed a good deal

in our understanding of this relationship and in acknowledging its importance.

## Integration

We now face the challenge of making the environment-development relationship work in practical terms at the levels of macro-development and economic policy, in sectoral policies in key areas such as energy, industry, transportation and resource development and at the level of projects and operations. In this, the role of development co-operation agencies, bilateral and multilateral, is crucial. Their growing commitment to integration of the environmental dimension into their development activities is encouraging, and their contributions to the Conference and preparations for it will be essential.



The key cross-cutting aspects of financing, technology transfer and institutional implications must be addressed in respect of each issue. But these go beyond the mere aggregating of issue-by-issue needs. They must also be addressed more broadly as overriding issues that will be central to the success of the Conference.

The principal challenge we face, however, is the need to reach a broad international consensus on the provision, on a sustained and dependable basis, of the very substantial amounts of additional funding, and access to technologies, which developing countries will require to enable them to pursue development policies and programmes which integrate the environmental dimension and to participate fully in international environmental co-operation. There has been little progress towards consensus on these critical issues as yet, but the need for it is inescapable. "Additionality" is not merely a slogan. It reflects the stark reality that however much de-



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(Cont. Pg. 5)

# ATAS *News*

A Technology Assessment Supplement

No. 8/Spring 1990

## Energy Policies And The Greenhouse Gas Bill

**T**here are few who would deny the existence of global warming today. Remaining doubts about the phenomenon relate principally to its ultimate magnitude and timing, the implications for global and regional climate systems and the impact on different economic and social systems.

Strategies to combat global warming range from the total elimination of greenhouse gases to the stabilization of emissions at acceptable levels—scenarios which imply “sacrifices” in terms of future development and lifestyles and are certain to be the subject of lengthy debate.

It is clear, however, that present trends in global energy use pose a major threat to the environment, risking both the exhaustion of currently utilized energy resources and the disruption of earthbound life support systems by climate change induced by emissions from energy combustion.

There is widespread global concern at increasing atmospheric levels of trace gases, such as carbon dioxide, carbon monoxide, methane, sulphur dioxide, water vapour and nitrogen oxides, which are generated mostly by an excessive consumption of natural resources—mostly for energy purposes—and by the improper application of related technologies. The alarming end result has been an increase in levels of acid rain, the depletion of the ozone layer and projected global warming in the range of 1.5 to 4.5 degrees centigrade.

Against this background, however, population pressures continue to grow, together with human needs for food, housing, energy and transportation. The dilemma facing many countries today, and those in the developing world in particular, is one



Emissions must be contained

of balancing an urgent demand for energy to support economic growth against the need for patterns of development which the planet can sustain.

An international conference in Saarbrücken (FRG) from May 28-31 will address the technological options in response to global warming under three main headings: large energy systems; small energy systems; and energy for transportation. The title of the Conference is “Energy in Climate and Development: Policy Issues and Technological Options”. It has been organized by the Centre for Science and Technology for Development with the support of the Ministry for Research and Technology of the Federal  
(Cont. Pg. 2)

## The View From Space

**A**s satellites skim the surface of the earth's atmosphere, silently sensing the landscape below, scientists and technicians in receiving centres around the world are able to study images of weather patterns, lakes, forests, fields of grain, mountains and wastelands. The images beamed to earth are often startling, presenting in vivid detail areas where forests are being cut or consumed by fire, and lands which are parched or flooded.

Since 1975, the United Nations Environment Programme has harvested this information through its Global Environment Monitoring System (GEMS). The System, which is based in Nairobi, uses the information to monitor environmental trends and make scientific assessments related to such things as climate and the atmosphere, renewable resources, airborne pollution, oceans and coastal areas.

### Global data link

To ensure that the data available through GEMS is put to practical use, the available data is distributed through a Global Resources Information Database (GRID) and micro-computers donated by IBM. GRID effectively bridges the gap between resource monitoring and resource management by assimilating data and making it available to decision-makers. The GEMS network currently has activities in 142 countries.

For further information about the Global Environment Monitoring System, please contact the United Nations Environment Programme, P.O. Box 30552, Nairobi, Kenya. ■



UN Photo

Republic of Germany and the Ministry for Economic Affairs of the Saar.

The Saarbrücken conference will not address the feasibility of global warming strategies currently under consideration by intergovernmental organizations. Instead, it will focus on the technological dimensions of energy systems and the policy issues associated with the various technological options.

Three working groups will be asked to consider existing technologies as well as research and development into new measures for the prevention, control and reduction of greenhouse gases and the management of energy wastes.

—Large energy systems: Discussion will centre mainly on fossil fuels, but the nuclear option will also be considered. The main focus will be on technological possibilities related to the control of pollutants, energy conservation and waste management. Members of the group will be stakeholders from the energy and environmental sectors as well as from business and industry.

—Small energy systems: These systems are typically disconnected from commercial power grids and discussion will revolve around the use of fuelwood and new and renewable sources of energy. Participants will be from developed and developing countries as well as from funding agencies.

—Energy for transportation: Discussion will focus on land, sea and, for the first time at international level, air systems and their impact on climate. The airline industry, including aircraft manufacturers, will be represented, together with members of the finance community, planners and policy makers.

Presentations will also be sought from bodies including the UNEP/WMO Intergovernmental Panel on Climate Change, UNESCO and other UN Organizations, the United States Congress, the Enquete Commission of the Parliament of the Federal Republic of Germany, the European Commission and the Council of Europe. Views will

also be sought from developing countries and from major policy research groups, such as the International Institute for Applied Systems Analysis (IIASA).

The Conference is the concluding event of the ATAS exercise on energy technologies and development. —■

## Forum For Expatriates

The Third World Network of Scientific Organizations (TWNISO) now has a North American Chapter. It is based at the University of Maryland and intends to provide a forum for third world expatriate scientists working in the United States and Canada. It hopes to involve expatriate scientists in the promotion of S&T in their home countries and to raise consciousness in North America about S&T issues of relevance to developing countries, through lectures, seminars and mass media.

The Director of the new chapter is professor Cyril Ponnampereuma, who is also Vice President of the Third World Academy of Sciences (TWAS). TWNISO is the programme implementation arm of TWAS which was founded in 1985 to help narrow the S&T gap between developed and developing countries.

Information regarding the new Chapter of TWNISO can be obtained by writing to Dr. Cyril Ponnampereuma, Director, North American Chapter of TWNISO, Laboratory of Chemical Evolution, Department of Chemistry, University of Maryland, College Park, MD 20742, USA. Tel: (301) 454-4059, Fax: (301) 454-0810. —■



Monitoring air quality—Chile

UNEP

## Examining The Human Factor

By Heitor Gurgulino de Souza

At the start of the last decade of the last century of the present millennium, we are becoming increasingly aware of the ways in which human strivings for a better life are bringing about marked changes in the systems that support life on our planet.

Over the centuries, humankind has existed on a seemingly inexhaustible supply of nature's resources. But in recent years, notably since the dramatic upsurge in technological capabilities in the latter part of the 20th century, the rate at which we have been taking from nature has been greater than that at which it can replenish and reinvigorate its life-support systems. It is the scale of human activities in modifying the environment that has become most ominous.



Prof. Gurgulino de Souza

UNU

The Human Dimensions of Global Change (HDGC) programme, as its title implies, is concerned with improving understanding of the human factor in the immensely complex equation of today's global environmental change. The programme is being jointly organized and directed by the United Nations University (UNU), the International Federation of Institutes of Advanced Study (IFIAS), the International Social Science Council (ISSC) and UNESCO.

The undertaking is seen as complementary to the International Geosphere-Biosphere Programme (IGBP) of the International Council of Science (Cont. Pg. 3)



FAO

### The Human Factor Cont.

tific Unions (ICSU). The IGBP work aims at improved understanding of the interactive physical, chemical and biological processes that regulate the Earth's total system. These are areas which, by their very nature, have largely engaged natural scientists. The research thus often stops short of examining explicitly the human and social dynamics which are so intimately interlinked with change in the global environment.

The Human Dimensions of Global Change programme, which is expected to run through the 1990s, is attempting to fill that void—by bringing a world-wide human and social perspective to global environmental and ecological concerns that have heretofore been largely the province of the natural sciences. International symposia and workshops sponsored by the HDGC programme have thus far been held in Toronto (where the concept of the work began to take form), Beijing, Tokyo, Paris, Budapest, Moscow and Washington, addressing a variety of aspects related to global environmental change. Future meetings in Third World countries such as Mexico are in a planning stage.

Broadly speaking, the HDGC programme has the following objectives:

1. To improve scientific understanding and increase awareness of the complex dynamics governing human interaction with the total Earth system;
2. To strengthen efforts to study, explore and anticipate social change affecting the global environment;
3. To identify broad social strategies to prevent or mitigate impacts of global change, or to adapt to changes that are already unavoidable; and
4. To analyse options for dealing with global environmental change, and promote the goal of sustainable development.

The issues which the HDGC programme are addressing are not new. For one thing, human beings have been disrupting the environment for centuries—and the remnants of "lost civilizations" in various parts of the world often testify to the havoc that humankind can wreak upon itself when it misuses the environment. For another, scientific analysis of environmental problems is already engaging many scholars, scientists and other concerned individuals in many parts of the world.

The programme is functioning through substantive working groups established by a meeting at UNU in Tokyo in 1988. Issues for working groups identified in Tokyo are the following:

—"Global Climate Change: Strategies and Responses": This working group focuses on energy strategies required to meet the target of a 20 per cent reduction in carbon dioxide emissions by the year 2005;

—"Needs of the most vulnerable peoples and places": This group analyses the environmental stresses various nations are subject to and how they could respond to them;

—"Global Risk Assessment": This working group focuses on possibilities for extended risk assessment applications to areas of the world not yet equipped with this mechanism;

—"Industrial Restructuring and the Analysis of Industrial Metabolism": The working group evaluates the costs, benefits and general impact of industrial change, and the difficulties which many countries encounter in this process;

—"Methods of Analysis, Modelling and Data Requirements": This team was established to develop appropriate concepts and methodologies for dealing with global change. It was designed to improve the availability and quality of social data in this area as

well as their management and dissemination.

All of these activities are linked to other international initiatives as well as regional and national programmes involving a broad variety of organizations at the intergovernmental and non-governmental level. The momentum reached should not be lost as these activities will help to pave the way for cross-national policy responses.

The over-arching goal of the Human Dimensions of Global Change programme rather is to try to create a "common language of concern" within the international human science community. International co-operation has been difficult enough to achieve in the natural sciences, which at least have a common analytical framework. It is ever more daunting in the human sciences, with their varieties of paradigms and conceptual approaches. The challenge is indeed formidable—but so too is the urgency of the international academic community to fashion a common response to global environmental changes that could well threaten human survival. ■

**Professor H. Gurgulino de Souza is Rector of the United Nations University.**

## The Other Side of the Coin

**T**he Human Dimensions of Global Change Programme (HDGCP) reflects an urgent need for information on which to base international action in the critical years ahead.

It is committed to global research spanning a decade at least and working group meetings have already been held or planned to explore vital issues.

Further information about the programme is available from: The HDGCP Secretariat, c/o IFIAS Toronto, 39 Spadina Road, Toronto, Ontario M5R 2S9, Canada. Telephone: (416) 926-7570 Fax: 926-9481. ■



Nature

# A Network For Cleaner Production

**T**he challenge for industries in today's global society is to produce more while polluting less. Rising waste disposal costs, the exposure of air and water emissions to regulatory controls and penalties and increasingly meticulous public scrutiny are proving to be powerful incentives to processes which reduce wastes at the source, rather than deal with them at the end of the pipe.

The development of new production methods, however, is a slow process, which is dependent upon many factors: in particular, research and development, technical training, the diffusion of technical change, financing for innovation, government intervention and the involvement of top industry management.

Progress towards cleaner processes has been made in many countries, but there remains a need to make the results known, and to transfer or exchange technologies and practices which could enhance cleaner production of goods and services.

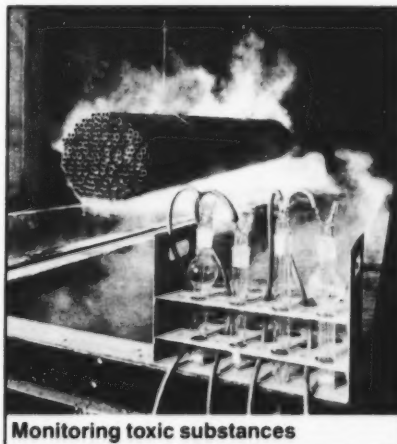
In response to an information bottleneck in this area, the Industry and Environment Office (IEO) of the United Nations Environment Programme (UNEP) is developing a Cleaner Production Network. UNEP's Governing Council last year directed the Programme to foster a network for the international exchange and dissemination of information about low- and non-waste technologies.

The UNEP/IEO Cleaner Production Programme currently has four main activities comprising industrial sector working groups, a computerized information exchange system, a newsletter and a seminar on the promotion of cleaner production.

**Industrial Sector Working Groups:** Four groups of specialists in tanning, textiles, halogenated solvents and electroplating industries meet regularly and share information on low- and non-waste technologies. A fifth group is harmonizing data on cleaner production.

By Jacqueline Aloisi de Larderel

A sixth group is being set up to focus on government policies for cleaner production. And a seventh working group on the pulp and paper industry will soon be launched. Each working group is co-ordinated by an expert in the field and is comprised of internationally recognized specialists.



Monitoring toxic substances

**Computerized Information Exchange System:** The International Cleaner Production Information Clearinghouse (ICPIC), is an information exchange system with more than 300 technology and programme case studies, a calendar of training events and seminars, a directory of experts and a bibliography of more than 300 frequently referenced publications and descriptions of international programmes on low- and non-waste technologies. This computerized system, now being tested by trial users, will be accessible to anyone with a personal computer and modem.

**Cleaner Production Newsletter:** The first issue of a quarterly newsletter dedicated to the reduction of industrial pollution will make its debut shortly. The newsletter will explore the use, success or failure of cleaner production technologies and the development of regional, national and global

information resources. It will provide a forum for discussion about cleaner production.

**Seminar on the Promotion of Cleaner Production:** A three-day seminar will be held in Canterbury, England (17-20 September) for about 150 invited senior-level officials from government, industry, academia and international organizations.

For more information about the IEO Cleaner Production Network please write to: UNEP/IEO, Tour Mirabeau, 39-43 quai Andre Citroen, 75739 Paris Cedex 15, France. ■

Jacqueline Aloisi de Larderel is the Director of UNEP/IEO.

## Conservationist Gets Top Job

**A**n influential defender of the Amazonian rain forest, Jose Antonio Lutzenberger, has been appointed as Brazil's new Secretary of the Environment. Mr Lutzenberger has been a highly visible pioneer of the environment movement in Brazil since the early 1980s and his appointment by President Fernando Collor de Mello, has given encouragement to conservationists at home and abroad. ■



ATAS News is a regular supplement to the Update newsletter of the UN Centre for Science and Technology for Development (UNCSTD). Its objectives are to inform scientists and planners of CSTD's activities in technology assessment (TA), to serve as an information medium for the ATAS Technology Assessment Network (TAN) and to highlight the implications of new technologies for developing countries. ATAS News offers readers an open forum to address these and related issues at the national, regional and international levels. Submissions for publication are welcome.

News-worthy articles, special reports, and photographs and other illustrative material should be sent to: ATAS Cluster, UNCSTD, 1 U.N. Plaza, N.Y., N.Y. 10017, USA. Telex 232432 UNHUR and 62460 UNATIONS. Cable, UNATIONS NEW YORK. Telex (212) 933411.

ATAS News is edited by Ian Steele.



Biochimica

veloping countries may recognize that investment in sustainable development makes sense in terms of their long-term economic and environmental interests, they simply cannot afford the additional funds this will often require in the short term. It is in everyone's interest that they have access to these additional funds, together with the most environmentally sound technologies. The sooner this is done, the less it will cost, environmentally and economically.

**Maurice F. Strong is Secretary-General of the UN Conference on Environment and Development**

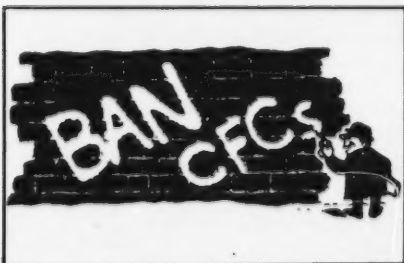
## Climate Report For Debate

**T**he Second World Climate Conference will be held in Geneva from 12-21 November, in time to receive and debate the report of the Intergovernmental Panel on Climate Change (IPCC).

The conference will also give climate experts the opportunity to examine methods of employing climatic information in support of environmentally sound development.

The Co-ordinator of the conference will be Howard Ferguson who recently retired as head of Canada's Atmospheric Environment Service.

For further information please contact the World Meteorological Organization, Case Postal no. 2300, CH-1211 Geneva 2, Switzerland. — ■



Economist

## Committee Appoints Chairman

**S**ingapore's Ambassador to the United States, T. T. B. 'Tommy' Koh has been elected Chairman of the Preparatory Committee for the United Nations Conference on Environment and Development. The conference will be held in Brazil in June, 1992.

In a statement to the Committee at UN Headquarters, Ambassador Koh said it was important to remember that the theme of the conference was not environment alone but environment and development, embracing concepts of equity and human solidarity.

"Equity means that those countries which have contributed most to the environmental problems of our world must take the boldest steps to reduce global risk", he said. "Equity also means that those countries which are rich in resources and technology must be prepared to help others to employ and adapt those best suited to their needs. When I speak of human solidarity, I have in mind the willingness of the industrialized countries to assist the developing countries, especially the least developed among them, with transfers of technology and funding."

In opening the first session of the Preparatory Committee, UN Secretary-General Javier Pérez de Cuéllar, said the progressive relaxation of polit-



Ambassador Koh

UN Photo

ical tensions provided the world community with a long-sought opportunity to refocus its attention on the economic, social and environmental agenda and the adoption of a blueprint for action towards environmentally sound and sustainable development: "Out of our collective efforts can emerge a new appreciation of who is our neighbour; a profound awareness that dire poverty and mindless consumerism cannot continue to co-exist without disastrous consequences; and a commitment to constructive and healthy change." ■

## Benjamin Franklin Award

**T**he Franklin Institute of the United States has announced that it will make an annual award of a gold medal and a minimum of \$250,000 to a scientist of any nation whose work in the biological or physical sciences results in a brilliant discovery or contributes to major advances in the field of science.

The first presentation of the award will be made this year on the bicentennial of Benjamin Franklin's death. It will be known as 'The Bower Award for Achievement in Science' in honor of Henry Bower, a chemical manufacturer and philanthropist.

Nominations will be accepted in English or in French until 30 May, 1990.

For further information and nomination forms please write to: Larry E. Tise, Ph.D., Executive Director, The Benjamin Franklin National Memorial, The Franklin Institute, Benjamin Franklin Parkway at 20th Street, Philadelphia, Pennsylvania 19103-1194, USA. FAX: (215) 448 1235. — ■



## Foundation Supports UN Events

**T**he Friedrich Ebert Foundation will co-sponsor a seminar for Parliamentarians in New York on 19-20 April as a prelude to the United Nations special General Assembly session on international economic co-operation.

The seminar will focus on the human dimensions of development and will deal with such major issues as:

- the environment and the economy;
- the impact of changes in East-West relations on North-South co-operation;
- human resources development;
- the debt crisis.

About 30 Parliamentarians from some 18 developing and developed countries will attend the seminar which has been designed as an exchange of ideas and experiences related to the General Assembly agenda. Expenses for the seminar will be met by the Foundation and its co-sponsors, the American non-governmental organization, Parliamentarians Global Action, and the UNDP Development Studies Programme.

### Continued support

This will be the second major UN-related event organized with the financial support of the Friedrich Ebert Foundation in the period 1989-90. During the 44th session of the General Assembly (1989) the Foundation sponsored a meeting of Eminent Persons which proposed among other things, the launching of a "Planet Assurance Programme" to help close the North-South technology gap and safeguard the global environment (*Update* #40).

### CSTD follow-up

As a follow-up to that meeting CSTD has been involved with:

—the development of centres of excellence proposed by Professor Abus Salam of the Third World Academy of Sciences. So far three centres have been established to deal with pure and applied chemistry, earth and environmental sciences, and new materials.

—consideration of initiatives related to the conversion of military-based economies in many countries to civilian economies. This work is being pur-

sued under the guidance of the Director-General for Development and International Economic Co-operation, and the UN Department of Disarmament Affairs.

—ongoing work on the convention for the protection of biological diversity, spearheaded by UNEP and FAO.

## Natural Gas Rebounds

**F**or decades, natural gas was the unwanted child of oil exploration—a nuisance whose disposal required the diversion of resources, and a material that in many fields was found useful only as a reinjection medium for the production of additional oil.

Gas's relative position on the energy scale has now changed, and as the forthcoming book—"Natural Gas; its role and potential in economic development"—maintains, it is now viewed as "an energy feedstock and raw material of choice."

The book's eight authors cite many factors which have contributed to this turnaround and have presented natural gas as an abundant, clean and therefore powerful tool for development in the next century.

More than 100 countries on all continents have substantial natural gas reserves with a potential to alleviate some of the most pervasive global environmental problems. Natural gas could be instrumental in reducing the rate of carbon dioxide emissions; it could ease the rate of formation of sulphur dioxides; and it could improve thermal efficiency in a number of power applications.

Among other factors, the book: explores the constraints on the development of natural gas until now; addresses questions of costing and pricing incentives for future use; and analyses specific uses and innovations which contribute to a bullish outlook for competitively priced natural gas reserves.

For further information about the book please write to: Westview Press, Customer Service, 5500 Central Avenue, Boulder CO 80301, USA. Tel: (303) 444-3541. ■

## Aiming For Sustainable Agriculture

By Jeffrey B. Tshirley

**J**ust a few decades ago there were grave reservations about the ability of agriculture to produce enough food to support expanding populations, most of them located in the less developed countries.

In retrospect, agriculture's performance has been notably better than many experts anticipated. During the period 1950-1980 total food production in the developing countries grew at a compound rate of 3 per cent a year and per capita production grew at a 0.6 per cent rate. Globally, we live today in a better-fed world while having sustained a population increase of 1.8 billion people. However, there remain notable imbalances in food production among the various regions, and the absolute numbers of persons without access to sufficient food continues to increase. Overall, agricultural production in developing countries will have to increase by 60 per cent by the year 2000 just to maintain the status quo.



Progress in science and technology is one of the leading contributors in the ongoing race that, so far, has kept global food production ahead of population growth. The green revolution, introduced during the 1960's with

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FAO

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improved high-yielding crop varieties, inputs of fertilizer, pesticides, irrigation and effective extension efforts, dramatically increased total production and productivity. Asia has been the primary beneficiary of green revolution technologies.

Most of the gains to date, however, have been registered in areas with better quality soils and sufficient water to regularly produce a crop. But continuing population growth (albeit at slower rates) and increasing food requirements are creating challenges in the more marginal areas that are as great or greater than those in the past. Today, many of the people without sufficient access to food are in areas with soils that are marginal for agriculture and have inadequate water resources. Thus, the present scientific and technological challenges involve overcoming these and other very complex constraints related to environmental, social and economic factors. A number of elements will be needed to devise integrated production systems that meet these challenges, including a continuing effort to increase production in the higher potential areas.

The following are some, but by no means all, of the priority areas in which science and technology can contribute towards environmentally sound and sustainable production systems.

The Food and Agriculture Organization (FAO) advocates the use of integrated pest management (IPM) whenever possible. One of the main objectives of IPM is to use natural control mechanisms, including detailed knowledge of pest ecology, combined when necessary with the judicious use of pesticides. This helps to avoid pollution problems which have arisen from some intensive food production systems in certain parts of Asia.

Over the long term, biotechnology offers great potential in helping to improve plant and animal production, rainfed and irrigated farming systems. In time it should contribute to increased production in marginal areas through the incorporation of drought resistance traits, more efficient nutrient utilization and other factors. It is also becoming more closely tied into the improvement of varieties of crops, shrubs and trees, for use in agro-forestry systems and silvo-pastoral systems.

The Tropical Forestry Action Plan is a mechanism for facilitating programmes on research, extension and demonstration in key areas, such as multi-purpose management of moist tropical forest, timber and non-wood forest products, cost-efficient techniques for watershed management, land rehabilitation, *in situ* and *ex situ* conservation of biological diversity and in combating desertification. Local community involvement in forest management, watershed rehabilitation, buffer zone management and silvo-pastoral management also need increased attention from foresters and social scientists.

In marginal areas as well as in high potential areas, soil fertility must be maintained. FAO's Integrated Plant Nutrition Systems (IPNS) adapts and combines known technologies to achieve increased fertilizer efficiency through the combination of on- and off-farm sources of plant nutrients. Elements include biological nitrogen fixation, especially for forage legume production; the introduction of Azolla, Sesbania and blue-green algae technologies in rice farming; and crop residue management and the recycling of organic wastes.

Access to renewable sources of energy in rural areas is essential to increased food production. Assistance is given to countries for improving technologies for charcoal making, for

wood-based commercial energy and for decentralized electricity generation for industrialized and community use. Biogas production using organic wastes and residues continues to be a major area of emphasis, and co-operation networks have been established by FAO in Africa, Asia and Latin America to this effect. Gasification of waste-wood and agricultural residues is also promoted, as are solar and wind energy systems, which contribute to food production, processing and preservation.

Decentralized technologies for energy-efficient agricultural mechanization include the introduction of suitable engineering technologies at the village level. Improvement is sought in traditional technologies for food processing, oil-seed and cash crop processing and for the production of indigenous flours and composites. Draught animal power focuses on the improvement of animal equipment components for production pumping and grinding.

As stated earlier, the challenge facing scientists and development specialists alike is how to arrive at improved production systems that are socially acceptable, environmentally sound and economically productive. This will involve placing greater research emphasis on such issues as: land tenure (common grazing land, crop encroachment onto grazing lands, fencing, perennial versus annual cropping); the use of extension services to get information and management techniques effectively put into practice; improving the access of both men and women to financial credit in order to augment their productivity; and using traditional production systems as a base upon which to build. In all these areas, research and technology development will play a key role concurrently with policy reforms and technical and financial assistance.

While the risks are great, the greater risk will be in failing to meet the challenge to increase food production. ■

**Jeffrey B. Tshirley is Environment Programme Officer with the Environment and Energy Programmes Co-ordinating Centre of the Food and Agriculture Organization.**

# Delayed Action Will Undermine Development

By Antoine Blanca

In the last forty years, we have collectively polluted our rivers, lakes and streams, our oceans and our air with waste disposal and gaseous emissions. In the next forty years alone, we will burn more fuel than has been consumed since the discovery of fire at the dawn of civilization. In the space of a few generations, we have succeeded in wilfully and with indifference upsetting the ecological balance, in disrupting the mutually supportive role of humans and our natural resources.

The irony of this situation is that it springs from causes located at separate ends of a spectrum: wealth and poverty.

Consumption—the result of wealth—presents waste. Solid, liquid and animal waste have all been dumped in our waterways, or underground. Seepage into potable water systems has led to serious, and sometimes fatal, outbreaks of disease. Fish populations have been decimated, thereby destroying both a major source of nutritious food and fishing and tourism as a means of livelihood. The disposal of toxic waste has become such a problematic undertaking that a black market has evolved.

Whereas wealth, or abundance, encourages people to pollute, poverty forces people to exploit the resources available to them for basic survival. The most serious example is the wholesale deforestation which is underway throughout the developing world. Wood is needed for cooking; charcoal is used for processing; and wood and wood products are an important source of income for many countries. Yet we know now that deforestation poses multiple problems for the environment, prominent among these being a break in the CO<sub>2</sub> chain of recycling.

The most serious threat from this situation is global warming. As we increase our levels of pollution and decrease our means of recycling or absorption, we compound the danger that the temperature of our planet will rise. This itself could lead to rising sea levels, which would flood areas of the tropics, including the rich agricultural lands; to increased salinity of the water table; and to the exposure of coastal areas to severe storms.

The solution to this situation lies in both national and international action. Governments must strengthen their national institutions for monitoring the environment; legislation must be passed which protects the environment; funds must be made available to enforce this legislation, to provide or explore alternative means of development, and to carry out research and development on environmentally-sound technologies.

No misunderstanding should exist. Measures to protect the environment and thus the future of the human race are not intended and cannot be understood as impediments to development. One cannot trade an ecological future for an economic one. As already noted, poverty is a major cause of environmental degradation, and thus its eradication is essential. The objective must be sustainable development, wherein development objectives are seen in the long-term, where the cost of ignoring environmental considerations will only undermine, not hasten economic development.

The hope for this situation lies not only in its recognition but in its internationalization. Whereas local pollution has been seen as a local problem, global warming is one which affects us all. Developed and developing countries are equally interdependent.

This fact begs the issue of finding the means to assist developing countries to move towards a sustainable

development at a pace sufficiently rapid as to permit, at the minimum, the delivery of basic needs to all citizens.

Prominent among these means are measures to assist developing countries to develop, adapt and use environmentally-sound technologies, with a particular emphasis on energy and waste disposal technologies. This includes the involvement of developing country scientists and technologists in international R&D as well as agreements on technology transfer which defer to the common interests of all countries to avoid global warming. It also presupposes that developing countries (and developed countries) will be encouraged to establish mechanisms for technology assessment based first on an identification of local demand. In this last respect, local participation in decision-making is particularly important.

Finally, it will be necessary to consider alternative mechanisms for pricing and funding. Examples range from the need to reflect environmental costs in the consumer price of fuels and materials which create waste, to financial assistance for the purchase of environmentally-sound technologies.

All of these issues highlight the tremendous importance of the World Conference on Environment and Development which the United Nations will convene in Brazil in 1992. Consensus may not come easily on some of these matters, but the time has arrived for the world community to acknowledge the critical juncture at which we now stand and to take concrete steps for implementing decisions which will guarantee a future world for the generations to come. ■

**Dr. Antoine Blanca is the UN Director-General for Development and International Economic Co-operation.**

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Update and ATAS News  
Edited by Ian Steele

"...A periodic newsletter to keep national authorities, United Nations organizations and inter-governmental and non-governmental organizations informed of the progress made and related developments regarding the implementation of the Vienna Programme of Action" (IGC resolution 5(II)).

UPDATE is a quarterly publication of UNCTAD, prepared, edited, published and distributed by the Communication Cluster of UNCTAD, at the United Nations Secretariat. It is distributed free of charge to all Member States, national focal points and inter-governmental and non-governmental organizations as well as to individuals upon request.